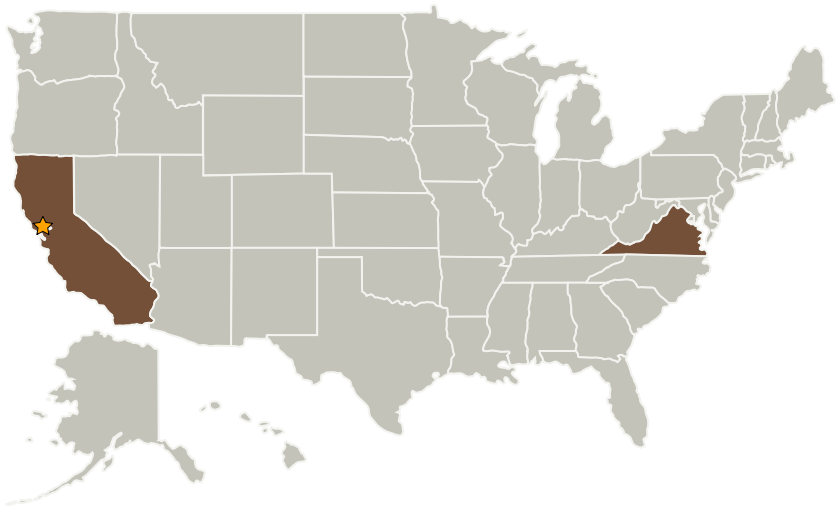
Automated Break-Out Box for use with Low Cost Spacecraft Integration and Test, Phase I

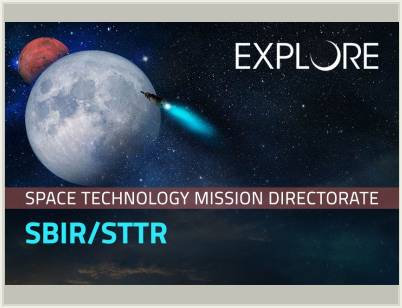
Completed Technology Project (2008 - 2008)

Project Introduction

Electrical checkout and testing is a critical part of the overall spacecraft integration and test flow. Verifying proper harness and connector signal interfaces is key to ensuring component health and overall system functionality. Break-Out Boxes (BOB) are used to give test personnel access to electrical signals for probing, voltage injection, isolation checks, safe-to-mate checks, and voltage/current measurements. Currently this involves manually attaching multimeters and oscilloscopes to banana jacks on the BOB, taking measurements and comparing to expected results. Tiger Innovations proposes designing an automated break-out box to make electrical integration activities more efficient, repeatable, and safe by introducing software controlled test sequences and reducing human errors. Additionally, significant schedule and cost reductions are realized by improving the speed and reliability of integration operations. Our software controlled BOB would allow isolation and safe-to-mate checks to be accomplished in a fraction of the time required for a human operator. Voltage and current measurements would be analyzed in the software for pass/fail criteria and reported to the user for inclusion in the test log. Automating test sequences through the use of an automated BOB has the potential to significantly streamline spacecraft, payload and launch site electrical integration and test activities.

Primary U.S. Work Locations and Key Partners





Automated Break-Out Box for use with Low Cost Spacecraft Integration and Test, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Automated Break-Out Box for use with Low Cost Spacecraft Integration and Test, Phase I

Completed Technology Project (2008 - 2008)

Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Tiger Innovations, LLC	Supporting Organization	Industry	Arlington, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Robert Atkin

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  - TX15.1 Aerosciences
    - TX15.1.1 Aerodynamics